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[Page 17929-17931]  
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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. 2000-NM-73-AD; Amendment 39-12704; AD 2002-07-10]**

**RIN 2120-AA64**

**Airworthiness Directives; Boeing Model 737-200, -200C, -300, -400, and -500 Series Airplanes**

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Final rule.

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**SUMMARY:** This amendment adopts a new airworthiness directive (AD), applicable to certain Boeing Model 737-200, -200C, -300, -400, and -500 series airplanes, that requires replacement of certain repairs in certain fuselage lap joints with improved repairs. This amendment also requires a high frequency eddy current inspection to find cracking of the repairs of the lower skin at the lower row of fasteners in the lap joints of the fuselage, and repair of any cracking found. This action is necessary to find and fix premature cracking of certain lap joint repairs, which could result in rapid decompression of the airplane. This action is intended to address the identified unsafe condition.

**DATES:** Effective May 17, 2002.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of May 17, 2002.

**ADDRESSES:** The service information referenced in this AD may be obtained from Boeing Commercial Airplane Group, PO Box 3707, Seattle, Washington 98124-2207. This information may be examined at the Federal Aviation Administration (FAA), Transport Airplane Directorate, Rules Docket, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

**FOR FURTHER INFORMATION CONTACT:** Scott Fung, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington; telephone (425) 227-1221; fax (425) 227-1181.

**SUPPLEMENTARY INFORMATION:** A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an airworthiness directive (AD) that is applicable to certain Boeing Model 737-200, -200C, -300, -400, and -500 series airplanes was published in the Federal Register on July 12, 2001 (66 FR 36513). That action proposed to require replacement of certain repairs in certain fuselage lap joints with improved repairs. That action also proposed to require a high frequency eddy current inspection to find cracking of the repairs of the lower skin at the lower row of fasteners in the lap joints of the fuselage, and repair of any cracking found.

## **Comments**

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received.

## **Clarify Wording in Paragraphs (b) and (f)**

One commenter states that paragraph (b) of the proposed rule should include repairs that are configured like Figures 39 and 227 of the Structural Repair Manual (SRM), where the repair parts are common to the overlapping skin of the fuselage lap joint, but where the damage is outside the lap joint lower row. The commenter notes that fatigue testing of the SRM repairs that are the subject of this proposed AD showed that premature cracking occurred on repairs configured like the SRM Figure 39, where the repair was common to the overlapping skin of the fuselage lap joint. The commenter adds that paragraph (f) of the proposed rule also should be changed. Paragraph (f) states, " \* \* \* installed in any area between BS 259.5 and BS 1016, other than those specified in paragraph (d) of this AD \* \* \* ." The commenter notes that the correct reference for establishing the area of the fuselage subject to this portion of the AD is paragraph (e).

The FAA agrees with the commenter. For clarification, we have changed paragraphs (b) and (e) of the final rule to add " \* \* \* or that have a lap joint repair configured like 737-200 SRM, Figure 39 or the 737-300 SRM, Figure 227 (paragraph b), and 737-400 SRM, Figure 229 or 737-500 SRM, Figure 227 (paragraph e), where the repair parts are common to the overlapping skin of the fuselage lap joint, but where the damage is outside the lap joint lower row." Paragraph (e) is similar to paragraph (b) but is applicable to Model 737-400 and -500 series airplanes. We have also changed paragraph (f) of the final rule to specify, " \* \* \* installed in any area between BS 259.5 and BS 1016, other than those specified in paragraph (e) of this AD \* \* \* ." We inadvertently cross referenced paragraph (d) within paragraph (f) of the proposed rule.

## **Structural Repair Manual Information**

One commenter asks that a point of contact be specified in the final rule so it can get SRM repair figures. The commenter states that it does not have access to the SRM repair figures specified in the proposed rule, and it will be difficult to determine if a repair was installed per one of those figures.

We agree and have added Note 2 to this final rule (and reordered subsequent notes accordingly) to specify a point of contact for obtaining the SRM repair figures.

A second commenter states that paragraph (a) of the proposed rule would mandate inspections of lap joints for specific repairs that were previously included in the applicable SRM. The commenter notes that if these repairs are found they are to be replaced with improved repairs, and adds that since those "bad" repairs were later determined to have poor fatigue characteristics, they were removed from the SRMs and are no longer illustrated in current revisions of the SRM. To facilitate inspection of these repairs, the commenter asks that the final rule include an attachment that depicts the repairs specified in the proposed rule.

The FAA does not agree, including attachments depicting all the repairs specified is not feasible due to the variety and number of repairs done. As stated above, we have added Note 2 to the final rule which includes a point of contact for obtaining the SRM repair figures specified. The commenter may also obtain the above requested information from the point of contact specified in Note 2.

A third commenter states that paragraph (b) of the proposed rule specifies that for repairs installed using the procedures specified in the SRM, the new replacement repairs must be installed before the accumulation of 15,000 flight cycles since repair installation, or within 5,000 flight cycles after the effective date of the AD, whichever occurs later. The commenter notes that it does not keep track of repair dates or cycles, especially if they are out of the SRM. The commenter asks that the date of the SRM incorporation be referenced in the final rule to provide a solid date that can be used to meet the flight cycle requirements specified in paragraph (b).

The FAA does not agree. Repair method incorporation dates differ from operator to operator, and the 5,000 flight cycle grace period specified in paragraph (b) of the final rule covers those operators that do not meet the compliance requirement of installation before the accumulation of 15,000 flight cycles since repair installation. However, the commenter may obtain the above requested information from the point of contact specified in Note 2 of the final rule.

### **Low Frequency Eddy Current (LFEC) Inspection**

Two commenters ask that an option be added to the final rule for doing an LFEC inspection in order to monitor the repair until it can be replaced at a scheduled maintenance visit. Both commenters propose a repetitive inspection interval of 1,200 flight cycles, with repair replacement to occur not later than 10,000 flight cycles after the effective date of the AD. The first commenter states that the test that identified the deficient repair, as identified in the proposed rule, was specifically designed to simulate pressurization cycles on crown skin laps. The commenter adds that, as these tests were not done on an in-service airplane, and the proposed rule does not reference any in-service crack findings, the simulated cracks may not occur on an airplane or it may occur at a later flight cycle limit than that specified in the proposed rule. The second commenter states that, due to the potential difficulties in determining the age of a given repair, it would like the LFEC option added for the timing of the repair replacement.

The FAA does not agree with the commenters. Although repetitive LFEC inspections could be done to reduce the exposure of premature cracking and consequent uncontrolled decompression of the airplane, the commenters did not provide sufficient technical justification for adding repetitive inspections and extending the replacement threshold. However, we would consider this option under the provisions for requesting approval of an alternative method of compliance, as provided by paragraph (g) of the final rule. No change is made to the final rule in this regard.

### **Conclusion**

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require the adoption of the rule with the changes previously described. The FAA has determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

### **Cost Impact**

There are approximately 2,359 Model 737 series airplanes of the affected design in the worldwide fleet. The FAA estimates that 958 airplanes of U.S. registry will be affected by this AD, that it will take approximately 14 work hours per airplane to accomplish the required actions, and that the average labor rate is \$60 per work hour. Based on these figures, the cost impact of the AD on U.S. operators is estimated to be \$804,720, or \$840 per airplane.

The cost impact figure discussed above is based on assumptions that no operator has yet accomplished any of the requirements of this AD action, and that no operator would accomplish those actions in the future if this AD were not adopted. The cost impact figures discussed in AD rulemaking actions represent only the time necessary to perform the specific actions actually required by the AD. These figures typically do not include incidental costs, such as the time required to gain access and close up, planning time, or time necessitated by other administrative actions.

### **Regulatory Impact**

The regulations adopted herein will not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, it is determined that this final rule does not have federalism implications under Executive Order 13132.

For the reasons discussed above, I certify that this action (1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. A final evaluation has been prepared for this action and it is contained in the Rules Docket. A copy of it may be obtained from the Rules Docket at the location provided under the caption ADDRESSES.

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

### **Adoption of the Amendment**

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

### **PART 39--AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

Sec. 39.13 [Amended]

2. Section 39.13 is amended by adding the following new airworthiness directive:

# AIRWORTHINESS DIRECTIVE

Aircraft Certification Service  
Washington, DC



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

*We post ADs on the internet at "[www.airweb.faa.gov/rgl](http://www.airweb.faa.gov/rgl)"*

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

**2002-07-10 Boeing:** Amendment 39-12704. Docket 2000-NM-73-AD.

**Applicability:** Model 737-200, -200C, -300, -400, and -500 series airplanes having line numbers 292 through 2565 inclusive, certificated in any category.

**Note 1:** This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (g) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

**Compliance:** Required as indicated, unless accomplished previously.

To find and fix premature cracking of certain fuselage lap joint repairs, which could result in rapid decompression of the airplane, accomplish the following:

## **Replacement of Structural Repair Manual (SRM) Lap Joint Repairs**

(a) For Model 737-200, -200C, and -300 series airplanes: Within 5,000 flight cycles after the effective date of this AD, inspect all lap joints between body station (BS) 259.5 and BS 1016 to identify all repairs accomplished in accordance with Boeing 737-200 SRM, Subject 53-30-03, Figure 39 (for 737-200, 200C series airplanes); or Boeing 737-300 SRM, Subject 53-00-01, Figure 227 (for 737-300 series airplanes).

(b) For Model 737-200, -200C, and -300 series airplanes that have a lap joint repair installed at stringers S-4L and S-4R, located between BS 259.5 and BS 1016; and installed at S-10L and S-10R, or at S-14L and S-14R, located between BS 259.5 and BS 540, and between BS 727 and BS 1016; that was previously done per the procedures specified in Boeing 737-200 SRM, Subject 53-30-03, Figure 39 repair (for 737-200, -200C series airplanes); or Boeing 737-300 SRM, Subject 53-00-01, Figure 227 repair (for 737-300 series airplanes); or that have a lap joint repair configured like the 737-200 SRM, Figure 39 or the 737-300 SRM Figure 227: Where the repair parts are common to the overlapping skin of the fuselage lap joint, but where the damage is outside the lap joint lower row; before the accumulation of 15,000 flight cycles since repair installation, or within 5,000 flight cycles after the effective date of this AD, whichever is later, do the requirements of paragraph (b)(1) or (b)(2) of this AD, as applicable, per Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001. If the area of damage that required the existing repair is outside the lap joint lower row, before further flight, repair per a method approved by the Manager, Seattle Aircraft Certification

Office (ACO), FAA; or per data meeting the type certification basis of the airplane approved by a Boeing Company Designated Engineering Representative (DER) who has been authorized by the Manager, Seattle ACO, to make such findings. For a repair method to be approved by the Manager, Seattle ACO, as required by this paragraph, the approval letter must specifically reference this AD.

(1) If the lap joints are being cut out when replacing the SRM repair: Replace the Figure 39 repair of the lower skin at the lower row of fasteners in the lap joints of the fuselage per Figures 16, 17, and 18 of the Accomplishment Instructions of the service bulletin.

(2) If the lap joints are not being cut out when replacing the SRM repair: Do a high frequency eddy current (HFEC) open-hole rotating probe inspection to find cracking of the SRM repair of the lower skin at the lower row of fasteners in the lap joints of the fuselage, per the Figure 20 inspection procedures of the Accomplishment Instructions of the service bulletin. Before further flight after doing the inspection, replace a Boeing 737-200 SRM, Subject 53-30-03, Figure 39 repair with a Boeing 737-200 SRM, Subject 53-30-03, Figure 42 repair (for 737-200, 200C series airplanes); or replace a Boeing 737-300 SRM, Subject 53-00-01, Figure 227 repair with a Boeing 737-300 SRM, Subject 53-00-01, Figure 228 repair (for 737-300 series airplanes); as applicable; per Part II.D. ("Crack Repair") of the Accomplishment Instructions of the service bulletin.

(c) For Model 737-200, -200C, and -300 series airplanes that have a lap joint repair installed in any area between BS 259.5 and BS 1016, other than those specified in paragraph (b) of this AD, that was previously done per the procedures specified in Boeing 737-200 SRM, Subject 53-30-03, Figure 39 repair (for 737-200, 200C series airplanes); or Boeing 737-300 SRM Subject 53-00-01, Figure 227 repair (for 737-300 series airplanes): Before the accumulation of 20,000 flight cycles since repair installation, or within 5,000 flight cycles after the effective date of this AD, whichever is later, do the requirements of paragraph (b)(1) or (b)(2) of this AD, as applicable, per Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001.

(d) For Model 737-400 and -500 series airplanes: Within 5,000 flight cycles after the effective date of this AD, inspect all lap joints between BS 259.5 and BS 1016 to identify all repairs accomplished in accordance with; or that have a lap joint repair configured like Boeing 737-400 SRM, Subject 53-00-01, Figure 229 (for 737-400 series airplanes); or Boeing 737-500 SRM, Subject 53-00-01, Figure 227 (for 737-500 series airplanes).

(e) For Model 737-400 and -500 series airplanes that have a lap joint repair installed at S-4L and S-4R, located between BS 259.5 and BS 1016; and installed at S-10L and S-10R, or S-14L and S-14R, located between BS 259.5 and BS 540, and between BS 727 and BS 1016; that was previously done per the procedures specified in Boeing 737-400 SRM, Subject 53-00-01, Figure 229 repair (for 737-400 series airplanes); or Boeing 737-500 SRM, Figure 227 repair (for 737-500 series airplanes); or that have a lap joint repair configured like 737-500 SRM, Figure 227 or 737-400 SRM, Figure 229: Where the repair parts are common to the overlapping skin of the fuselage lap joint, but where the damage is outside the lap joint lower row, before the accumulation of 15,000 flight cycles since repair installation, or within 5,000 flight cycles after the effective date of this AD, whichever is later, cut out and replace the repair per a method approved by the Manager, Seattle ACO; or per data meeting the type certification basis of the airplane approved by a Boeing Company DER who has been authorized by the Manager, Seattle ACO, to make such findings. For a repair method to be approved by the Manager, Seattle ACO, as required by this paragraph, the approval letter must specifically reference this AD.

(f) For Model 737-400, and -500 series airplanes that have a lap joint repair installed in any area between BS 259.5 and BS 1016, other than those specified in paragraph (e) of this AD, that was previously done per the procedures specified in Boeing 737-400 SRM, Subject 53-00-01, Figure 229 repair (for 737-400 series airplanes); or Boeing 737-500 SRM, Figure 227 repair (for 737-500 series

airplanes): Before the accumulation of 20,000 flight cycles since repair installation, or within 5,000 flight cycles after the effective date of this AD, whichever is later, cut out and replace the repair per a method approved by the Manager, Seattle ACO; or per data meeting the type certification basis of the airplane approved by a Boeing Company DER who has been authorized by the Manager, Seattle ACO, to make such findings. For a repair method to be approved by the Manager, Seattle ACO, as required by this paragraph, the approval letter must specifically reference this AD.

**Note 2:** Copies of the SRM repair figures specified in paragraphs (b), (c), (e), and (f) of this AD may be obtained from Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124-2207.

### **Alternative Methods of Compliance**

(g) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Seattle ACO. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Seattle ACO.

**Note 3:** Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Seattle ACO.

### **Special Flight Permits**

(h) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

### **Incorporation by Reference**

(i) The replacement and high frequency eddy current inspection, as specified in paragraphs (b)(1) and (b)(2) of this AD, shall be done in accordance with Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124-2207. Copies may be inspected at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

### **Effective Date**

(j) This amendment becomes effective on May 17, 2002.

Issued in Renton, Washington, on April 2, 2002.

Ali Bahrami,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 02-8456 Filed 4-11-02; 8:45 am]

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